

U.S. Serial Number: 10/678,689  
Reply to Office Action of: August 3, 2006  
Family Number: P2002J098 (JJK-0330)

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### REMARKS

Reconsideration of this application is requested. The claims are not amended. The claims submitted for reconsideration are claims 1 – 3, 7 – 14, 18 – 27, and 29 – 33.

**I. Rejections under 35 U.S.C. §103 – US 6,264,826 (Xiao) in view of US 4,906,350 (Lucien) or US 5,935,417 (Cody)**

The rejection of claims 1 – 3 and 7 – 10 under 35 U.S.C. §103(a) over US 6,264,826 (Xiao) in view of either US 4,906,350 (Lucien) or US 5,935,417 (Cody) is respectfully traversed. The rejection fails to provide a proper prima facie case of obviousness, as the modifications proposed in the rejection would render Xiao unsatisfactory for its intended purpose. (In re Gordon, 733 F.2d 900 (Fed Cir 1984); MPEP 2143.01.V) Lucien and/or Cody do not contain any description or suggestion that can cure this deficiency in Xiao.

**The Xiao Reference requires a VI increase of 5 or greater**

Xiao describes a catalytic process for producing a lubricating oil basestock. In Xiao, the desired lubricating oil basestocks are produced using a mild hydrotreating step that increases VI by at least 5 while maintaining a ratio of VI increase to volumetric cracking conversion of greater than 1.0 (Col. 7, line 62 - Col. 8, line 26).

The requirement that of having a hydrotreating step that increases VI by at least 5 is one of the essential teachings within the Xiao reference. The effect of the Xiao hydrotreating process on the viscosity index is specifically discussed at Col. 7, line 62 - Col. 8, line 52. For example, "During hydrotreating according to the present

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invention, the viscosity index of the hydrotreated oil is increased significantly, with relatively little yield loss.” (Col. 7, lines 62 - 64.) “Thus, during hydrotreating according to the present process, the viscosity index of the petroleum feedstock is increased by at least 5 viscosity index units, and preferably increased by between about 5 and about 25 viscosity index units, wherein the viscosity index of the petroleum feedstocks and of the hydrotreated oil are on a dewaxed basis.” (Col. 8, lines 21 - 26.)

The above statements indicate that having a viscosity index increase of 5 or more is a required element of Xiao, not merely a preferred embodiment. This is confirmed by the numerous other descriptions in Xiao of having a VI increase of 5 or more after hydrotreating. For example, in Tables II - IV of Example 5, all of the hydrotreatment processes shown have a VI increase of at least 8. Additionally, Xiao has no other teaching or counter example to indicate that the hydrotreating process in Xiao can produce a VI increase of less than 5.

The claimed invention requires a VI increase of less than 3

The claimed invention requires hydrotreating a feedstock to produce a hydrotreated feedstock whose VI increase is less than 3 greater than the VI of the feedstock. In the claimed invention, having a VI increase of less than 3 greater than the VI of the feedstock means that the modifications to the molecules in the feedstock are kept to a minimum. This is desirable for use in conjunction with the claimed ZSM-48 dewaxing catalyst, which shows improved operation when used on minimally modified feedstocks. By contrast, Xiao explicitly states that a VI increase of 5 or more is desired. This indicates that a modification of the molecules in the feedstock is desired.

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**Modifying Xiao to have a VI increase of less than 3 renders Xiao ineffective for its intended purpose**

The only hydrotreatment step described in Xiao explicitly requires a VI increase of 5 or greater, in contrast to the claimed invention. The Office Action that it would be obvious to modify Xiao to have a VI increase of less than 3. Regardless of motivation, this is not permissible, as this modification renders Xiao unsatisfactory for its intended purpose. (In re Gordon, 733 F.2d 900 (Fed Cir 1984); MPEP 2143.01.V) As a result, the rejection should be withdrawn for at least this reason.

**The Office Action relies on the claimed invention for motivation to modify Xiao**

The only hydrotreatment step described in Xiao explicitly requires a VI increase of 5 or greater, in contrast to the claimed invention. To overcome this deficiency, the Office Action asserts on pages 3 and 4 (emphasis added) that:

"It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Xiao by operating the hydrotreating zone at even more mild conditions to produce a hydrotreated product having VI increase less than 4 [sic] greater than the VI of the feedstock as claimed because operating the hydrotreating zone at severe conditions would produce a desired low sulfur product, but such conditions would cost more to operate and would hydrogenate desirable products such as olefins. Therefore, one of skill in the art would select to operate the Xiao process to produce a hydrotreated product as claimed when one desires to operate the hydrotreating zone with no hydrogenation or very little hydrogenation of desirable products (e.g., olefins.)."

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In the above assertion, several substantial modifications are made to Xiao that directly contradict the explicit stated purpose of Xiao. These substantial modifications are asserted without any support, suggestion, or motivation of any type based on Xiao or the other references. Instead, the Office Action appears to be impermissibly using the claimed invention as a road map, and then selectively picking and choosing from references to identify the newly claimed combination.

First, as previously noted, the Office Action simply ignores Xiao's stated goal of providing a hydrotreating step with a VI increase of 5 or greater. Because Xiao clearly requires a VI increase of 5 or greater, Xiao cannot provide the motivation for modifying the hydrotreating process in Xiao to have a VI increase of 3 or less. Additionally, there is no disclosure or suggestion in Lucien or Cody that would cause one of skill in the art to simply ignore this explicit teaching of Xiao.

Next, the Office Action proposes to modify the hydrotreating step of Xiao to have even milder conditions. Xiao explicitly states that the current hydrotreatment conditions can leave high levels of contaminants such as sulfur, and that the subsequent dewaxing and hydrogenation steps must be tolerant of the increase levels of contaminants that remain. The Office Action points to no teaching or suggestion in any reference that even more mild conditions can be used while still removing sufficient levels of contaminants. The fact that such milder conditions might be cheaper and therefore be desirable is mere conjecture. A cheaper process is desirable only if it is effective. Neither Xiao, Lucien, or Cody provides a suggestion or motivation that a more mild set of hydrotreating conditions can be successfully used.

Finally, the above assertion from the Office Action states that one would be motivated to make the above changes when little or no hydrogenation is desired. While this may be true, the motivation to have little or no hydrogenation must be

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provided based on the references, not merely by a hindsight driven analysis enabled by a later claimed invention. The cited references provide no such motivation. Additionally, such motivation cannot simply be provided by the knowledge of one of ordinary skill in the art, due to the lack of ability to predict whether the proposed modification of Xiao would be effective for its intended purpose. For at least the above reasons, reconsideration and withdrawal of the rejection of claims 1 - 3 and 7 - 10 is requested.

**II. Rejections under 35 U.S.C. §103 – Xiao in view of US 5,837,639 (Kresge) and further in view of Lucien or Cody**

The rejection of claims 11 – 14, 18 – 27, and 29 – 33 under 35 U.S.C. §103(a) over Xiao in view of US 5,837,639 (Kresge) and further in view of either Lucien or Cody is also respectfully traversed. For the reasons described above, the rejection fails to provide a proper prima facie case of obviousness, as the modifications proposed in the rejection would render Xiao unsatisfactory for its intended purpose for the reasons described above. Additionally, even if Xiao could be modified, there is no motivation to combine Xiao with Kresge to arrive at the claimed invention.

As described above, Xiao does not describe or suggest the claimed requirement of hydrotreating a feedstock to produce a hydrotreated feedstock whose VI increase is less than 3 greater than the VI of the feedstock. The description provided in Kresge does not cure this deficiency in Xiao.

Even if Xiao could be somehow be operably modified to meet the claimed requirement of hydrotreating a feedstock to produce a hydrotreated feedstock whose VI increase is less than 3 greater than the VI of the feedstock, there is still no motivation to combine Xiao and Kresge to arrive at the claimed invention.

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Xiao states that the mild hydrotreating conditions used in the Xiao process are possible because the subsequently used hydrogenation catalyst in Xiao can function in an environment with higher levels of impurities. (Col. 2, line 65 - Col. 3, line 11.) If Xiao is modified to have an even more, mild hydrotreating process, presumably the impurity levels remaining after hydrotreatment would be still higher, making the hydrogenation catalyst used in Xiao more critical. The preferred hydrogenation catalyst described in Xiao is a macroporous catalyst, with at least 1% of the total pore volume being in macropores of diameter of greater than about 1000 angstroms. (Xiao, Col. 12, lines 11 - 39) Because of the emphasis in Xiao on selecting a hydrogenation catalyst that can tolerate the output from a mild hydrotreatment step, one of skill in the art would use caution in substituting the hydrogenation catalyst of Xiao with an alternative catalyst. This caution would be intensified if one of skill in the art were modifying Xiao in the counterintuitive manner suggested in the Office Action.

By contrast, Kresge describes a hydroprocessing catalyst that is a mesoporous crystalline catalyst with uniform pores within the range of from 13 to 200 angstroms. (Kresge, Col. 6, lines 48 - 57) Due to the differences between the types of catalysts, the emphasis in Xiao on the special value of its preferred hydrogenation catalyst for the Xiao invention as a whole, and the additional caution required when modifying Xiao in a manner that would leave even greater impurity levels behind in the feed after the initial hydrotreatment step, one of skill in the art would not be motivated to replace the Xiao catalyst with the dissimilar catalyst described in Kresge.

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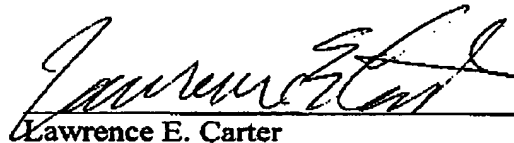
### III. Conclusion

Having demonstrated that all rejections of claims have been overcome, this application is in condition for allowance. Accordingly, applicants request early and favorable reconsideration in the form of a Notice of Allowance.

If there are any questions regarding this amendment or the application in general, a telephone call to the undersigned would be appreciated, since this should expedite the prosecution of the application for all concerned.

If necessary to affect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to affect a timely response. Please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1330.

Respectfully submitted,



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☒ Pursuant to 37 CFR 1.34(a)

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